



ADVANCED COURSES IN ECONOMICS FOR DOCTORAL STUDENTS AND FACULTY MEMBERS 2023



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INTRODUCTION

The Study Center Gerzensee, Foundation of the Swiss National Bank, opened its doors in 1986 to serve as an international training and conference center for economists and central bank staff.

The Study Center currently offers programs in Graduate Training and Central Banker Training. It also hosts a range of conferences and workshops, which are regularly attended by leading scholars and policy makers.

Our Advanced Courses in Economics primarily target doctoral students who have completed their first-year training.

The courses cover topics and methods at the research frontier in the main fields of economic research. The specific fields and courses may vary from year to year.

The courses are also open to university faculty members as well as researchers and analysts at policy institutions and in industry. We welcome participants who seek advanced training in the subject area to understand and conduct first-rate academic research.

In 2023, the Study Center is offering six Advanced Courses in Economics. This brochure

lays out the program, introducing the course contents and lecturers. It also provides information on funding, organization, and admission.

We hope you will find this year's program attractive. We look forward to welcoming curious and ambitious course participants to Gerzensee.

Martin Brown
Director

Cyril Monnet
Program Manager
Doctoral Courses

PROGRAM

Ex Ante and Ex Post Policy Evaluation
Approaches
Petra Todd, University of Pennsylvania
May 8–12, 2023

Inequality and Intergenerational Mobility:
Underlying Drivers and Policy Solutions
John N. Friedman, Brown University
June 26–30, 2023

Digital Economics, Fin Tech, and AI
Applications for Finance, jointly with SFI
Lin William Cong, Cornell University
August 7–11, 2023

Topics in International Macroeconomics
and Finance: Macroeconomics of
Exchange Rates
Oleg Itskhoki, University of California,
Los Angeles
August 7–11, 2023

Computation of Heterogeneous Agent
Models
Dean Corbae, University of Wisconsin –
Madison
September 4–8, 2023

Probabilistic Modeling of Networks and
Relational Data
David B. Dunson, Duke University
October 30 – November 3, 2023

A typical course day includes classroom lectures of three hours as well as exercise review sessions or office hours to discuss thesis projects. Course weeks typically start on Monday at 10:30 a.m. and end on Friday at noon.

Participants obtain a certificate.

Optionally, they may take an exam upon request, the Study Center reports the grade to the participant's university. It is the responsibility of participants to obtain credit with their universities.

Depending on the epidemiological situation, courses may have to be held online.

EX ANTE AND EX POST POLICY EVALUATION APPROACHES

Petra Todd
University of Pennsylvania

MAY 8–12

This course will examine econometric methods for evaluating effects of program interventions. Typical interventions that might be of interest include job training or other active labor market programs, education programs (such as school subsidy programs), cash transfer programs, agricultural programs, or health programs.

The first part of the course will examine ex post evaluation methods that are applicable when data are available on persons who participated in the program and possibly also on a group of people who did not participate. We consider both the case where the program was randomly assigned and when assignment was not random. We will examine methods that include regression estimators, matching estimators, control function estimators, regression discontinuity methods, IV, LATE, MTE and PRTE estimators.

The second part of the course will consider methods for ex ante evaluation, that is, methods for evaluating program interventions that do not yet exist or for evaluating alternative versions of existing programs. These methods typically make more extensive use of structural models. We will consider ways of specifying and estimating static and dynamic discrete models and examine applications in labor and in development.

Petra Todd is an empirical economist with research contributions in the area of labor economics, economics of education, development, econometrics, criminology and demography. Her work on program evaluation develops methods for evaluating the effects of interventions in education and training using both experimental and nonexperimental data. She has written seminal papers on matching, control function, and regression-discontinuity (RD) methods. Additionally, Todd participated in several randomized experimental evaluations. She was an expert consultant in designing the Progresca conditional cash transfer program experiment. She also played a key role in designing the ALI experiment in Mexico that paid for improvement on high school mathematics curriculum tests. In recent research, Todd develops new methods for predicting the impacts of programs that do not yet exist, which is very useful at the stage of designing a new social program or in considering changes to an existing program. Another focus of her research is on modeling of household behaviors, such as choices about fertility, schooling, employment, retirement and savings. Petra Todd regularly publishes in leading economic journals and teaches courses on program evaluation worldwide. She is a research associate of NBER, the U Penn Population Studies Center, HCEO, and IZA.

INEQUALITY AND INTERGENERATIONAL MOBILITY: UNDERLYING DRIVERS AND POLICY SOLUTIONS

John N. Friedman
Brown University

JUNE 26–30

Inequality has grown rapidly in many countries over the past generation, leading to increasing concerns not only around these disparities per se but also on “equality of opportunity.” This course will cover recent literature measuring intergenerational mobility and estimating causal effects of policies on long-run outcomes. Specific topics will include education, health, social capital, and housing. This course will also focus on commonly used methods in this literature, including empirical Bayes and hierarchical modeling, as well as various quasi-experimental techniques.

John N. Friedman is the Briger Family Distinguished Professor of Economics and International and Public Affairs at Brown University, as well as a founding co-Director of Opportunity Insights.

His work has appeared in top academic journals as well as in major media outlets, has been cited by President Obama in his 2012 State of the Union Address, and has shaped policies at the federal, state, and local level. Most recently, John and his colleagues at Opportunity Insights have published the Economic Tracker, providing the most granular and real-time look at how COVID-19 is affecting the economy in cities and states across America. He worked as Special Assistant to the President for Economic Policy at the National Economic Council in the White House. He is also a Research Associate at NBER and Co-Editor at the flagship journal in the profession, the American Economic Review. He currently serves as Chair of the Brown University Economics Department and is a member of the Treasury Advisory Council on Racial Equity (TACRE).

DIGITAL ECONOMICS, FIN TECH, AND AI APPLICATIONS FOR FINANCE

Lin William Cong
Cornell University

AUGUST 7–11

Decades of digitization and recent technological innovations such as AI and blockchain have fundamentally altered how people conduct economic activities and how financial institutions operate or interact, calling for the augmentation of econometric toolbox as well as novel economic frameworks. This course introduces emerging and important themes at the intersection of technology and finance, with the goal of bringing students to the frontier of FinTech research. It covers both theoretical and empirical research, with an emphasis on the economics and socioeconomic implications of AI, digitization, and FinTech, although institutional background and technical details are also introduced as needed. The course begins with a brief discussion of digital platforms and the data economy, and then shifts focus to recent developments entailing distributed ledgers, cryptocurrencies, decentralized finance, token usage and pricing, market manipulation, and blockchain forensics and regulation. The course next highlights the distinguishing features of financial big data and the need to tailor machine learning models to financial applications, ending with illustrations of how interpretable AI holds promises to advance both research and practice by helping answer key questions in asset pricing and corporate finance.

Lin William Cong is the Rudd Family Professor of Management, Associate Professor of Finance, and the founding director of FinTech at Cornell Initiative. He is also a Finance editor at the Management Science, Research Associate at the NBER, cofounder of two international research forums (ABFR and CBER), and was formerly a Kauffman Junior Fellow, Poets & Quants World Best Business School Professor, George P. Shultz Scholar, and Lieberman Fellow. He taught at the University of Chicago after earning his Finance PhD and MS in Statistics from Stanford, and A.M. in Physics jointly with A.B. in Math and Physics from Harvard. He studies applied theory, asset pricing, corporate finance, and information economics (e.g., applications of information design in financial markets). In particular, he pioneered interdisciplinary research on tokenomics, crypto asset pricing, AI for finance, blockchain forensics and design, and how digitization and big data interact with competition, growth, and entrepreneurship. His work has been recognized with numerous best paper prizes and grants and has been widely circulated and adopted in the industry. A highly sought-after keynote speaker at various international conferences and world forums, he advises leading FinTech firms and quant funds, as well as government and regulatory agencies around the globe.

TOPICS IN INTERNATIONAL MACROECONOMICS AND FINANCE: MACROECONOMICS OF EXCHANGE RATES

Oleg Itskhoki
University of California, Los Angeles

AUGUST 7–11

This is a PhD topics course in International Macroeconomics focused on exchange rates from the perspective of both goods and financial markets. The course covers the empirics and modeling of various properties of the real and nominal exchange rates and their co-movement with macroeconomic variables, under both floating and fixed exchange rates. The course also covers optimal exchange rate policies, including optimal currency areas, exchange rate pegs, FX interventions, and trilemma constraint on optimal monetary policy in an open economy.

Oleg Itskhoki holds the Venu and Ana Kotamraju Endowed Chair in Economics at the University of California, Los Angeles. He is a Fellow of the Econometric Society,

an NBER research associate, a CEPR research affiliate, and an associate editor of the American Economic Review. His research interests are in macroeconomics and international economics, where he studies globalization and labor markets, currencies, exchange rates and international relative prices, as well as other topics. He holds a BA in economics from Moscow State University, an MA in economics from the New Economic School, and a PhD in economics from Harvard University. He is the 2022 John Bates Clark Medalist, a participant of the Review of Economic Studies Tour, a Sloan Research Fellow, a recipient of the Excellence Award in Global Economic Affairs from the Kiel Institute for the World Economy, and was on the IMF's list of 25 influential economists under the age of 45.

COMPUTATION OF HETEROGENEOUS AGENT MODELS

Dean Corbae
University of Wisconsin–Madison

SEPTEMBER 4–8

This course provides a foundation for computing heterogeneous agent models used in macroeconomics, finance, labor, industrial organization, and international finance. It begins with the computation of Bewley models (households receive idiosyncratic earnings shocks and consumption smooth using non-contingent bonds inducing an endogenous cross-sectional distribution of wealth). It applies these methods (nested fixed points) to the computation of Hopenhayn models (firms receive idiosyncratic productivity shocks inducing an endogenous firm size distribution). It ends with computational methods (simulated method of moments and indirect inference) to estimate the parameters of dynamic structural models. The tools allow researchers to conduct counterfactual policy experiments and evaluate their welfare effects. Importantly, there will be numerous computer exercises in the language of the student's choice (our code will be supplied in Julia) – the only way to learn!

Dean Corbae is the William Sellery Trukenbrod Chair in Finance and holds a tenured appointment in the Economics department at the University of Wisconsin - Madison. Before coming to Wisconsin, he was the Sebastian Centennial Professor of Business Administration at the University of Texas at Austin. Dean has been a visiting professor at the Wharton School of the University of Pennsylvania and Cambridge University, as well as a Visiting Scholar at numerous Federal Reserve Banks. He is also a research associate of the National Bureau of Economic Research. His research focuses on consumer finance, corporate finance, and banking. His papers have been published in *Econometrica*, *Journal of Political Economy*, *Review of Economic Studies*, and others. He has co-authored several books including *An Introduction to Mathematical Analysis for Economic Theory and Econometrics*, published by Princeton University Press. He received his PhD from Yale University.

PROBABILISTIC MODELING OF NETWORKS AND RELATIONAL DATA

David B. Dunson
Duke University

OCTOBER 30–NOVEMBER 3

There is very commonly interest in studying interconnections or relationships between different entities. Network or relational data consist of information on links between different nodes. In the unweighted case, the links consist of simple 0-1 indicators of a relationship between each pair of nodes. For social networks, nodes correspond to different individuals and links indicate the individuals are connected in some way. In other settings, nodes may consist of products or companies. This short course will provide a practical introduction to probabilistic and statistical modeling and inferences for network/relational data. This will include accessible descriptions of different types of modeling approaches, with practical illustrations, descriptions of computational implementations and hands-on data analysis sessions. Topics will include: (1) inferring community structure in networks through stochastic block models, including approaches that allow an unknown number of communities; (2) latent space models for flexibly modeling relationships between nodes; (2) extensions of latent space models to multi-network settings; (3) dynamic network modeling; and (4) graph auto-encoders that rely on neural networks to improve flexibility of latent space models. An emphasis will be on Bayesian approaches that

characterize uncertainty in inferences through posterior distributions. Markov chain Monte Carlo (MCMC) algorithms will be used for posterior computation and illustrated in practical R sessions. Morning lectures will be complemented by afternoon hands on tutorials.

David Dunson is Arts & Sciences Distinguished Professor of Statistical Science and Mathematics at Duke University. His research focuses on developing statistical and machine learning methodology for analysis and interpretation of complex and high-dimensional data, with a particular emphasis on scientific applications, Bayesian statistics and probability modeling approaches. Methods development and theory is directly motivated by challenging applications in neuroscience, genomics, environmental health, and ecology among others. His work has had a substantial impact, with an H-index of 91. He has received numerous awards, including a gold medal from the US Environmental Protection Agency, the COPSS Presidents' Award given to one outstanding statistician each year, the Mortimer Spiegelman Award given to one outstanding public health statistician each year, a highly cited researcher award from Web of Science, an IMS Medallion lecture, and most recently the G.W. Snedecor Award of the Committee of the Presidents of Statistical Societies (COPSS).

FUNDING AND ORGANIZATION

The program is heavily subsidized. The course fee for students or faculty members affiliated with a university or other research institution amounts to CHF 400, and for other participants to CHF 1'400. The fee is non-refundable. It covers tuition as well as the cost of a single or double room with full

board. Should a course be held online, the fee will be CHF 400 for all participants.

For information about the hotel services, see the website of the Study Center's [hotel](#). The restaurant offers meat, fish, and vegetarian meals and caters to special diets.

Participants are responsible to obtain visas for their entire trip including transit destinations; after admission, the Study Center may issue an invitation letter upon request. No accompanying persons are admitted.

ADMISSION

The Study Center invites Swiss universities and the Swiss National Bank to nominate candidates. It also invites individuals who are not affiliated with a Swiss university or the Swiss National Bank to apply directly to the Study Center. As space is limited, the Center cannot admit all qualified applicants. Repeat applications are possible.

Applicants must be enrolled in a doctoral program or must have completed their PhD.

Candidates affiliated with a Swiss university or the Swiss National Bank should indicate their interest by sending an e-mail to the representative at their home institution listed below. Other candidates should contact the Study Center directly at the e-mail address given below. The representative or the Study Center will then initiate a web-based application process, allowing candidates to submit their application online. Unlike in previous years, there is no application form to download from the Study Center's website.

Representatives:

EPFL, G. Rassenfosse
ETH, P. Egger
Swiss Finance Institute, R. Mittal
Swiss National Bank, C. Lenz
The Graduate Institute, C. Tille
University of Basel, Y. Lengwiler
University of Bern, H. Dellas
University of Fribourg, H. Herz
University of Geneva, A. Tetenov
University of Lausanne, B. Klaus
University of Lucerne, S. Lüchinger
University of Neuchâtel, D. Kaufmann
University of St. Gallen, R. Föllmi
Università della Svizzera italiana, L. Kueng
University of Zurich, R. Weber

Deadlines:

Candidate submits application online:
February 6, 2023

Representatives review applications:
February 13, 2023

Study Center communicates admission decision: **End of February 2023**

Participant pays fee: **March 31, 2023**

CONTACT

All mail as well as inquiries should be addressed to:

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LOCATION

<https://szgerzensee.ch/contact>

